

## RIVER STAGES AND FLOODS FOR MARCH 1946

By C. R. JORDAN

Precipitation during March was heavy in the middle Gulf States, Nevada, Wyoming, southern Nebraska, Iowa, and adjacent areas. It was dry in the Northeastern States and in a large area in the Southwest.

Moderate floods were reported in Georgia, Florida, Minnesota, the Dakotas, and Michigan. The heavy snow cover in the northern States from the Mississippi Valley to Maine was melted and carried to the sea with only minor local flooding resulting. Very warm weather during March, with deficient precipitation over critical areas, resulted in gradual run-off from the snow without any serious flooding for the second consecutive year.

*Red River of the North.*—A flood of limited extent occurred in the valley of the Red River of the North late in March due to rapid melting and run-off of a heavy snow cover. Surveys at the end of February indicated more than 15 inches of snow over the upper part of the valley on the Minnesota side, with depths as great as 35 inches near Wheaton, Minn., and 20 inches near Fergus Falls, Minn. On the North Dakota side there was less than 15 inches, as a rule, with only 10 inches at Hankinson, N. Dak., and 5 inches at Lisbon. Mean temperature departures at Fargo-Moorhead were from +12° to +23° each day from March 14 to March 23. This extremely warm weather caused a rapid melting of the snow, and the water accumulated in the channels quickly. The Red River, at Fargo and below, rose over 2 feet per day for several days. There was some overflow of lowlands in the valley but damage was not great.

*St. Lawrence drainage.*—Floods occurred in the Grand and Saginaw River basins of southern Michigan as a result of rapid snow melt combined with moderate precipitation during the first decade of the month. Greatest overflow was in the tributaries of the Saginaw River. The places hardest hit by the floods were Alma, on the Pine River; Mt. Pleasant, on the Chippewa; Midland, on the Tittabawassee; Vassar, on the Cass; and Saginaw, on the Saginaw River. The crest of 11.6 feet at Alma was the highest on record, with the one exception of March 17, 1919, when the water reached 12.1 feet. At Mt. Pleasant the crest of 14.1 feet was only 0.1 foot below the previous highest record of May 22, 1912. At Midland the crest of 22.6 feet was the third highest of record, and at Saginaw the crest of 20.8 feet was well below the record stage of 24.3 feet that occurred on March 31, 1916, but it was the highest stage reached at Saginaw since the spring of 1942.

A number of highway bridges were destroyed or damaged and many homes were inundated. Highway travel had to be suspended in numerous sections where the roads were under water or bridges out of commission. There was also some loss that resulted from suspension of business that was made necessary by the high waters.

*Atlantic Slope and East Gulf of Mexico drainage.*—The heavy blanket of snow that covered the Northeastern States at the end of February was melted gradually and carried off by the streams without any serious overflow. Flood stages were exceeded at scattered points in New England and in the headwaters of the Susquehanna River in New York, but no general or serious flood stages were reached. Ice action in some of the streams resulted in local overflow.

Streams continued high in the Southeastern States although much below the high levels of January and February. There were several periods of heavy rainfall

during March that affected the river stages. Most effective were those rains of the last few days of the month in Alabama, western Georgia, and Florida. A tabulation of flood stages reached is given in the table at the end of this report.

*Mississippi System.*—Light to moderate flooding occurred in the Mississippi Valley at many stations from the headwater tributaries to the Gulf of Mexico. Bankful stages were reached in the main stream from Gordons Ferry, Iowa, to Grafton, Ill., and at Baton Rouge and Plaquemine, La.

Minor flooding occurred in the upper tributaries of the Mississippi as a result of melting snow that accompanied an extended period of warm weather which prevailed most of the month. Fed by melting snow in the headwaters, the upper Mississippi River rose steadily, and as the increased flow moved downstream, it was augmented by additional run-off from rain and melting snow. Moderate flood stages were reached along the main stream from Gordons Ferry, Iowa, to below Grafton, Ill. Scattered flooding was reported in many of the tributaries of the middle and lower Mississippi, including the Missouri, Ohio, Arkansas, Red, Yazoo, and Atchafalaya Rivers.

*West Gulf of Mexico drainage.*—There was some overflow of streams in Louisiana and Texas. The Sabine River was falling along its entire course at the beginning of the month but was still in flood at several stations. It fell below flood stage at all points during the first half of the month, but additional rain occurred near the end of the month that caused the stream to exceed flood stage slightly at a few points, and it continued above flood stage at the end of the month. Several other streams, including the Neches, Trinity, and Guadalupe Rivers, were above flood stage during the month, but overflow was very moderate.

## FLOOD STAGE REPORT FOR MARCH 1946

[All dates in March unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest <sup>1</sup>	
		From—	To—	Stage	Date
HUDSON BAY DRAINAGE					
Red of North:	<i>Feet</i>			<i>Feet</i>	
Moorhead, Minn.....	17	23	30	23.1	22
Grand Forks, N. Dak.....	25	26	Apr. 2	28.3	28
ST. LAWRENCE DRAINAGE					
<i>Lake Michigan</i>					
Red Cedar:					
Williamston, Mich.....	7	{ 3	4	7.1	3
		5	6	7.2	6
East Lansing, Mich.....	8	{ 3	4	8.9	4
		6	6	8.1	6
Grand: Lowell, Mich.....	15	8	10	15.5	9
<i>Lake Huron</i>					
Flint: Flint, Mich.....	11	7	7	11.4	7
Cass: Vassar, Mich.....	14	6	8	16.7	8
Chippewa: Mt. Pleasant, Mich.....	13	7	9	14.1	8
Pine: Alma, Mich.....	9	6	9	11.6	8
Tittabawassee: Midland, Mich.....	18	7	10	22.6	8
Shiawassee: Owosso, Mich.....	7	6	6	7.5	6
Saginaw: Saginaw, Mich.....	19	8	13	20.8	9
<i>Lake Erie</i>					
St. Joseph: Montpelier, Ohio.....	10	7	7	10.0	7
ATLANTIC SLOPE DRAINAGE					
Pemigewasset: Plymouth, N. H.....	11	15	15	11.3	15
Connecticut:					
South Newbury, Vt.....	22	18	16	22.3	16
White River Junction, Vt.....	18	8	9	20.3	8
Walpole, N. H.....	30	10	10	31.5	10
Hartford, Conn.....	16	{ 10	12	18.0	11
		16	18	17.5	17
Tloughnioga: Whitney Point N. Y....	12	7	9	13.1	9
Chenango:					
Sherburne, N. Y.....	8	9	9	9.0	9
Greene, N. Y.....	8	9	9	9.6	9
Binghamton, N. Y.....	16	8	10	17.8	9

See footnote at end of table.